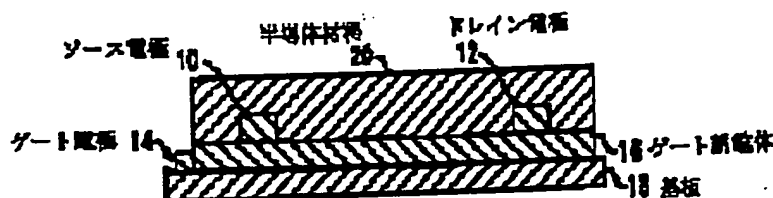


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JP10135481

# DEVICE CONSISTING OF THIN FILM TRANSISTOR

LUCENT TECHNOL INC

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 Application No. 09281661 , Filed 19971015 , Published 19980522 ,

**Abstract:** PROBLEM TO BE SOLVED: To improve the property of an n-channel organic semiconductor material to be used for a TFT that an n-type organic semiconductor compound has a single linear array of an unsaturated ring and a LUMO energy level has a specific value besides showing a field-effect quantum mobility.

**SOLUTION:** A device using a TFT consisting of an n-type organic semiconductor material consists of a thin film transistor with a gate 14, a source 10, a drain 12 and an n-type organic semiconductor compound. This n-type organic semiconductor compound has a single linear array of an unsaturated ring to be selected from a carbon ring and a heterocycle and has a lowest unoccupied molecular orbit (LUMO) energy level of about 3.5 to about 4.6eV in reference to a vacuum energy level. This compound shows an electric field effect electron mobility above  $2 \times 10^{-4} \text{ CM}^2 \text{V}^{-1} \text{S}^{-1}$ . Further, the n-type organic semiconductor compound is selected from NTCDA, NTCDI and TCNNQD.

**Int'l Class:** H01L029786 H01L05100

**Priority:** ;US 96 729304 19961015

**MicroPatent Reference Number:** 000022459

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